#### 1) Reliability Must Run (RMR) Resources Reforms (ER25-682)

#### 4.2 Generation Resources

4.2.8 Interim Provisions for RMR Generation Resources [New subsection]

For Delivery Years up to and including the 2027/2028 Delivery Year (unless an extension of these provisions are proposed by PJM and approved by FERC), Reliability Must Run (RMR) Generation Capacity Resources that meet the criteria specified in Tariff, Attachment DD, section 5.3(b) will be included in the Base Residual Auction and may be included in the Third Incremental Auction with a Sell Offer of \$0/MW-day and settled in accordance with the provisions specified in Tariff, Attachment DD sections 5.3, 5.4 and 5.14. To the extent there is a reduction in Accredited UCAP for such resources between the Base Residual Auction and Third Incremental Auction, PJM will adjust the quantity that it seeks to procure or release in the Third Incremental Auction in accordance with Tariff, Attachment DD, section 5.3 (b) (ii) and 5.4(c). Furthermore, such resources shall not be subject to the rights and obligations of a committed Capacity Resource, and shall not be eligible for Non-Performance Charges or bonus payments. The performance and cleared Unforced Capacity of such Generation Capacity Resources shall also be excluded from the Balancing Ratio, as specified in Tariff, Attachment DD, section 10A.

## 2) Maintain a CT as the Reference Resource through 26/27 DY (ER25-682)

3.3.1 Cost of New Entry The value for Cost of New Entry (CONE) (in ICAP terms) is determined in accordance with Attachment DD of the Open Access Transmission Tariff (OATT), Section 5.10 (a) (iv). For Delivery Years up to and including the 2025/2026 Delivery Year, <u>T</u>the Reference Resource is a combustion turbine (CT) generating station, configured with a single General Electric Frame 7HA turbine as defined in the OATT. For the 2026/2027 Delivery Year and subsequent Delivery Years, the Reference Resource is a combined cycle (CC) generating station, configured with a double train 1x1 single shaft General Electric Frame 7HA.02 turbine with an F-A650 steam turbine as defined in the OATT.

5.4.8.4 Default MOPR Floor Offer Prices A. Default New Entry MOPR Floor Offer Price The Default New Entry MOPR Floor Offer Price for a Generation Capacity Resource that is subject to the MOPR and for which a Sell Offer based on that resource, or any uprate of the Generation Capacity Resource, has not previously cleared an RPM Auction for any Delivery Year is based on the net cost of new entry ("CONE") of the applicable resource type. The net CONE values are determined by subtracting the estimated net energy and ancillary service revenues from the gross cost of new entry ("CONE") values shown in the table below. The gross CONE values of the table below are adjusted for Delivery Years subsequent to the 2022/2023 or 2026/2027 Delivery Year, as applicable, as described below. The net energy and ancillary services revenue estimate is determined for each resource type and for each Zone as described in sections 5.14(h-2)(3)(A)(i) through (viii) of Attachment DD of the PJM OATT.21 For the capacity resource types listed in the table below, the Default New Entry MOPR Floor Offer Price is set equal to the net CONE of each resource type expressed in terms of Unforced Capacity ("UCAP") MW where the net CONE values are initially calculated for each resource type in terms of nameplate MW and then converted to

UCAP MW. Through the 2024/2025 Delivery Year the net CONE is converted to UCAP MW terms based on the applicable class average EFORd for thermal generation resource types and battery energy storage resource types and the applicable ELCC Class Rating for battery storage, wind and solar generation resource types. Beginning with the 2025/2026 Delivery Year, the net CONE is converted to UCAP MW terms based on the applicable class average Accredited UCAP Factor (i.e., applicable ELCC Class Rating). The resultant net CONE in nameplate MW terms of the battery energy storage resource type is multiplied by 2.5 prior to converting to UCAP terms.

Table - Gross CONE Values used to Determine Default New Entry MOPR Floor Offer Prices

Change this cell in the table for 26/27 DY Combustion Turbine \$427394

#### 3) Uniform PAI Non-Performance Charge Rate (ER25-682)

8.4A Non-Performance Assessment

The interval Non-Performance Charge is calculated as Performance Shortfall multiplied by the Non-Performance Charge Rate. The Non-Performance Charge Rate for Capacity Performance commitments is equal to {[the modeled LDA through the 25/26 DY, otherwise the RTO Net CONE (\$/MW-day in installed capacity terms)\_for which the resource resides times number of days in the Delivery Year] divided by 30} divided by the number of Real-Time Settlement Intervals in an hour. The modeled LDAs and their respective Net CONE are provided in the Delivery Year BRA Planning Parameters posted on the PJM website.

## <u>4) Clarifying Must-Offer Exception Language and remove the categorical must-offer exemption applicable to Intermittent, Capacity Storage, and Hybrid</u> <u>Resources (ER25-682, ER25-785)</u>

5.4 Sell Offers in RPM 5.4.1 Resource-Specific Sell Offer Requirements

Sell Offers for the Base Residual and Incremental Auctions must be submitted in PJM's Capacity Exchange system. Sell offers are only accepted during a fixed bidding window which is open for at least five (5) business days. The bidding window for a Base Residual Auction and Incremental Auctions will be posted on the PJM website. Sell offers may not be changed or withdrawn after the bidding window for a Base Residual Auction or Incremental Auction is closed.

The following are business rules that apply to Resource-Specific Sell Offers:

- The smallest increment that may be offered into any auction is 0.1 MW
- A resource-specific sell offer will specify, as appropriate:

 $^{\circ}$  Specific Generating Unit, Demand Resource, Energy Efficiency Resource, or Aggregate Resource

 With the exception of Existing Generation Capacity Resources that are Intermittent Resources and Capacity Storage Resources, and Hybrid Resources consisting exclusively of components that in isolation would be Intermittent Resources or Capacity Storage Resources, eEach Existing Generation Capacity Resource with available capacity that is capable or can reasonably become capable of qualifying as a Capacity Performance Resource must submit a Capacity Performance sell offer segment.

• ELCC Resources that are Generation Capacity Resources may not offer or otherwise provide UCAP MW quantities above the greater of their Capacity Interconnection Rights, or the transitional system capability as limited by the transitional resource MW ceiling for the applicable Delivery Year, please see Manual 14B: Regional Transmission Planning Process. Notwithstanding, external resources may offer up to their Accredited UCAP.

Intermittent Resources are generation capacity resources with output that can vary as a function of its energy source, such as wind, solar, landfill gas, run of river hydroelectric power and other renewable resources. An acceptable method for determining the quantity of unforced capacity MWs that may offer as Capacity Performance for an intermittent resource is based on calculating the average of the hourly output (MWh) of the intermittent resource during the expected performance hours in the summer and winter. The expected performance hours in the summer are hours ending 15:00 through 20:00 EPT in the months of June, July, and August. The expected performance hours in the winter are hours ending 6:00 through 9:00 EPT and 18:00 through 21:00 EPT in the months of January and February. Notwithstanding the above, PJM may review and accept alternative proposed methods for determining the quantity of unforced capacity MWs that may be offered as Capacity Performance for an Intermittent resource.

Capacity Storage Resources shall mean any Energy Storage Resource as defined in the OATT that participates in the Reliability Pricing Model or is otherwise treated as capacity in PJM's markets such as through a Fixed Resource Requirement Capacity Plan. An acceptable method for determining the quantity of unforced capacity MWs that may offer as Capacity Performance for a Capacity Storage Resource is based on calculating the average of the hourly output (MWh) of the intermittent resource during the expected performance hours in the summer and winter. The expected performance hours in the summer are hours ending 15:00 through 20:00 EPT in the months of June, July, and August. The expected performance hours in the winter are hours ending 6:00 through 9:00 EPT and 18:00 through 21:00 EPT in the months of January and February.

• Notwithstanding the above, ELCC Resources may not offer or otherwise provide UCAP MW quantities above their Accredited UCAP.

Exceptions to the capacity performance must-offer requirement will be permitted for a generation capacity resource which the Capacity Market Seller demonstrates is reasonably expected to be physically incapable of satisfying the requirements for a Capacity Performance Generation Resource by the start of the Delivery Year, the resource has a financially and physically firm commitment to an external sale of its capacity, or the resource is seeking to remove Capacity Resource status in accordance with Section 5.4.7 of this manual. The Seller must submit a request for an exception (with all supporting information) no later than 120 days before the offer window opens for the relevant RPM Auction. Nothing herein provides a defense to a claim of withholding, market manipulation, or the exercise of market power by any entity who is affiliated with or are under common ownership or control of a Capacity Market Seller that does not submit an offer into the capacity market.

• Capacity Market Sellers seeking an exception for a BRA on the basis that the resource is incapable of meeting the Capacity Performance Resource requirements shall include a documented plan with the submission of their exception request showing the steps the Capacity Market Seller intends to pursue for the resource to become physically capable of satisfying the requirements of a Capacity Performance Resource, and provide periodic updates on the progress of such plan in accordance with Tariff, Attachment DD, section 6.6A(c).

Existing Generation Capacity Resources that are Intermittent Resources, Capacity Storage\_Resources, Hybrid Resources consisting exclusively of components that in isolation would be Intermittent Resources or Capacity Storage Resources, Demand Resources, and Energy Efficiency Resources are not required to submit a Capacity Performance sell offer segment.

#### 4.7.1 Resource Position for Generation Capacity Resources

For an RPM Auction, a party's Daily Unoffered ICAP for a generation resource is equal to the party's Current Available ICAP Position minus the Offered ICAP in the party's sell offer. The Daily Unoffered ICAP for Capacity Storage Resources, Intermittent Resources, and Hybrid Resources consisting exclusively of components that in isolation would be Intermittent Resources or Capacity Storage Resources is not applicable since these resources are not subject to a Capacity Performance must offer requirement. A FRR Entity's Daily Unoffered ICAP for a generation resource is set equal to 0 MW.

## 5) Memorialize the delayed BRA dates in the Tariff (ER25-682)

#### 5.1 Overview of RPM Auctions

The Reliability Pricing Model (RPM) is a multi-auction structure designed to procure resource commitments to satisfy the region's unforced capacity obligation through the following market mechanisms: a Base Residual Auction, Incremental Auctions and a Bilateral Market.

• Base Residual Auction – The Base Residual Auction is held during the month of May three (3) years prior to the start of the Delivery Year. <u>Notwithstanding, the Base Residual Auctions for the 2025/2026</u> through 2029/2030 Delivery Years shall be conducted in accordance with the RPM Auction Schedule

posted on the pim website. Base Residual Auction (BRA) allows for the procurement of resource commitments to satisfy the region's unforced capacity obligation and allocates the cost of those commitments among the Load Serving Entities (LSEs) through a Locational Reliability Charge.

# 6) Remove EE add back as part of auction clearing process. Leave rest of EE rules until after 25/26 DY. (er24-2995-000)

2.4.5 Adjustments to RPM Auction Parameters for EE Resources (through the 2025/2026 Delivery Year only)

An Energy Efficiency (EE) Resource is a project that involves the installation of more efficient devices/equipment, or the implementation of more efficient processes/systems, exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a permanent, continuous reduction in electric energy consumption that is not reflected in the peak load forecast prepared for the Delivery Year for which the EE Resource is proposed. Because energy efficiency measures are reflected in the peak load forecast for a Delivery Year for which an auction is being conducted, the auction parameters must be adjusted as described below for the EE Resource(s) that are proposed for that auction in order to avoid double-counting of the energy efficiency measures.

For each auction, the Reliability Requirement of the RTO and each affected LDA will be increased by the total UCAP Value of all EE Resource(s) for which PJM accepted an EE M&V Plan for that auction, and upon which PJM created an EE Resource to be offered into that upcoming auction.9 If a first-pass auction solution clears fewer EE Resource MW than the amount by which the Reliability Requirement of the RTO and each affected LDA was increased, the Reliability Requirement increase of the RTO and each affected LDA was increased, the Reliability Requirement increase of the first-pass auction solution and the auction will be solved again. This step is repeated until the cleared EE Resource MW across the RTO equals the total EE Addback MW quantity of the RTO or until the sum of squares of the differences across all LDAs increases relative to the previous iteration. The RTO/LDA reliability requirement increases will be considered in the development of the RTO/LDA VRR Curves as explained in Section 3.4 of this manual.

#### 3.3 Parameters of the Variable Resource Requirement

Prior to the clearing of the Base Residual Auction, Variable Resource Requirement Curves are defined for the PJM Region and each of the constrained Locational Delivery Areas (LDAs) within the PJM region that are to be modeled in the auction. The Variable Resource Requirement Curves for the PJM Region and each Locational Delivery Area (LDA) are based on the following parameters defined prior to the RPM Auctions:

- A target level of reserve
- Cost of New Entry
- Net Energy & Ancillary Services (E&AS) Revenue Offset
- The Nominal PRD Value and PRD Reservation Prices that have been elected

The initial posting of the Variable Resource Requirement Curves will be based on no

adjustments related to FRR Entities' Preliminary Unforced Capacity Obligations. A later posting of the Variable Resource Requirement Curves with the FRR adjustments will be made shortly after the approval of the FRR Capacity Plans for the RPM Auction Delivery Year considering any changes in the FRR elections and after the approval of Energy Efficiency Measurement & Verification Plans for RPM Auction.

#### 3.4 Plotting the Variable Resource Requirement Curve

For the 2022/2023 Delivery Year through and including the 2024/2025 Delivery Year, the Variable Resource Requirement Curve is plotted on a graph on which Unforced Capacity is on the x-axis and price is on the y-axis using the following three points a, b, and c:

a. The price is equal to the greater of [the Cost of New Entry or 1.5 times (the Cost of New Entry minus the Net E&AS Revenue Offset, referred to as "Net CONE")] divided by (one minus Pool-Wide Average EFORd) and Unforced Capacity is equal to [PJM Region Reliability Requirement10 multiplied by (100% plus the approved IRM% minus 1.2%) divided by (100% plus approved IRM %)].

10. The Reliability Requirement used in the unforced capacity quantity equation for points (a), (b), and (c) excludes any adjustment for PRD or EE (through the 2025/2026 Delivery Year for EE only). The VRR Curve that results is adjusted leftward to reflect the impact of PRD and rightward to reflect the impact of EE through the 2025/2026 Delivery Year as explained in section 3.4.1 of this manual.

#### 3.4.1 Plotting the Variable Resource Requirement Curves

The Variable Resource Requirement Curve will be further adjusted to reflect the impact of any EE addback <u>through the 2025/2026 Delivery Year</u>. The Variable Resource Requirement Curve will be shifted rightward along the horizontal axis by a quantity equal to the EE addback MW quantity as explained in Section 2.4.5. The Variable Resource Requirement Curve for each LDA in which EE resides (including the RTO curve) will be shifted in the exact same manner.

#### 4.4 Energy Efficiency Resources

An Energy Efficiency (EE) Resource is a project that involves the installation of more efficient devices/equipment, or the implementation of more efficient processes/systems, exceeding then current building codes, appliance standards, or other relevant standards, at the time of installation, as known at the time of commitment, and meets the requirements of Schedule 6 (section L) of the Reliability Assurance Agreement. The EE Resource must achieve a permanent, continuous reduction in electric energy consumption at the End Use Customer's retail site (during the defined EE Performance Hours and during winter performance period if such EE Resource is a Capacity Performance Resource) that is not reflected in the peak load forecast used for the Auction Delivery Year for which the EE Resource is proposed. The EE Resource must be fully implemented at all times during the Delivery Year, without any requirement of notice, dispatch, or operator intervention.

Because energy efficiency measures are reflected in the peak load forecast for a Delivery Year for which an auction is being conducted, the auction parameters must be adjusted <u>through the 2025/2026</u> <u>Delivery Year</u>, as described is Section 2.4.5, for the EE Resource(s) that are proposed for that auction in order to avoid double-counting of the energy efficiency measures

The EE Performance Hours are defined as the hours between the hour ending 15:00 Eastern\_Prevailing Time (EPT) and the hour ending 18:00 EPT during all days from June 1 through August 31, inclusive, of such Delivery Year, that is not a weekend or federal holiday.

An EE installation is eligible to offer <u>through the 25/26 Delivery Year</u> into an RPM auction or commit to an FRR Capacity Plan if it meets the following criteria:

• EE installation must be scheduled for completion prior to DY;

• EE installation is not reflected in peak load forecast used for the auction for which the EE is offered (is not reflected in peak load forecast used as basis for FRR Capacity Plan requirements if committing to an FRR Capacity Plan);

- EE installation exceeds relevant standards at time of installation as known at time of commitment;
- EE installation achieves load reduction during defined EE Performance Hours; and
- EE installation is not dispatchable16.